Transform with Flash!

**ETERNUS AF Storage**

FUJITSU Storage ETERNUS AF is an incredibly fast and flexible all-flash storage system for the next generation data center. At an affordable price point, it makes flash the new normal for all tier-1 applications in enterprise IT. Response times are ultra-low – in fact, they set performance records. The ETERNUS AF is also built to be smart, with easily-configurable automated quality of service to ensure each app gets the performance it needs, plus flexible deduplication and compression that can be turned on when required – and off when not. It keeps data safe as houses, with full-fledged DR with mirroring and automated transparent failover.

**ETERNUS AF650**

The Fujitsu All-Flash Storage system ETERNUS AF650 delivers leading storage performance and automated quality of service management enabling a maximum of system utilization and contributing to a fast ROI. It is the perfect solution when consolidating data of large-scale databases, business-critical applications and business analytics / big data – all into one all-flash system. Extensive high-availability and disaster recovery capabilities make ETERNUS AF650 an ideal storage system for any kind of business data.
# Features & Benefits

<table>
<thead>
<tr>
<th>Main Features</th>
<th>Benefits</th>
</tr>
</thead>
</table>
| Based on ETERNUS DX standard architecture | - Performance optimized design  
- Proven and mature technology  
- Common management across all-flash and hybrid ETERNUS storage systems |
| Flexible and flash optimized storage | - Ultra-low response times for all applications  
- Massive increase of IOPS  
- No complicated tuning measures required  
- Scalable in capacity and connectivity |
| Selective use of deduplication / compression | - Decide on volume label whether to use it or not  
- Cost reduction for flash  
- Increased lifespan of flash |
| Automated Quality-of-Service | - Control of applications priorities according to business needs.  
- Automation of monitoring and adjustment  
- Minimization of admin efforts  
- Guaranteed service levels |
| Storage Cluster Option/Transparent failover | - Avoid planned or unplanned downtimes  
- Enjoy 100% data insurance and non-stop operations |
| Convincing access performance and latency | - Sufficient performance for all applications requiring high data rates and low response times |
| Random access performance: Up to 620,000 IOPS (4 KB Blocks)  
Sequential access performance: Max. 12 GB/s (128 KB Blocks)  
Latency: Less than 1 ms (4 KB Blocks) |
## Technical details

### General system information

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5-inch Controller Enclosure</td>
<td></td>
</tr>
<tr>
<td>No. of controllers</td>
<td>2</td>
</tr>
<tr>
<td>No. of host interfaces</td>
<td>32 ports [FC(16Gbit/s)], 16 ports [iSCSI(10Gbit/s)]</td>
</tr>
<tr>
<td>Maximum System Memory</td>
<td>256 GB</td>
</tr>
<tr>
<td>Maximum Disk Drives</td>
<td>96</td>
</tr>
<tr>
<td>Supported RAID levels</td>
<td>0, 1, 1+0, 5, 5+0, 6</td>
</tr>
</tbody>
</table>

**Host Interfaces**
- Fibre Channel (16 Gbit/s)
- iSCSI (10 Gbit/s)

**Max. no. of hosts**
4,096

**Maximum Storage Capacity**
368.64 TB

**Drive Type**
- 2.5-inch, SSD (3.84 TB / 1.92 TB / 960GB / 400 GB)
- 2.5-inch, SSD (self-encrypting) (1.92 TB)

**Drive interface**
Serial Attached SCSI (12 Gbit/s)

**Back-end disk connectivity**
4 pairs of four-lane x 12 Gbit/s Serial Attached SCSI buses (SAS 3.0 wide)

**Max. no. of LUNs**
6,144

**No. of snapshots - max.**
8,192

**Max. no. of copy generations**
512

**Deduplication**
- for block

**Compression**
- for block

### Performance

**Latency**
- Write 60 μs, Read 160 μs (Minimum)

**Sequential access performance**
- 2,560,000 IOPS (100 % Read, 4 KB Blocks)

**Random access performance**
- 620,000 IOPS (100 % Read, 4 KB Blocks)

### Performance management

- Automated Storage Tiering: Yes
- Quality of Service: Yes
- Automated QoS: Yes
- Wide striping: Yes

**Note**
Automation options can be activated via ETERNUS SF Software

### Continuity management

- Storage Cluster: Yes
- Remote Copy functionality: Synchronous and asynchronous

**Note**
Options can be activated via ETERNUS SF Software

### Information security management

- Data confidentiality: Self-Encrypting Disk, Controller based Encryption, HTTPS (SSL), One Time Password, RADIUS, SSH
- Data integrity: Cache Protection, Data Block Guard, Disk Drive Patrol

### Availability management

- Non-disruptive maintenance: Dedicated Hot Spare, Global Hot Spare
- Non-disruptive firmware upgrade: Yes
- Redundancy: RAID Controller, Power supply, Fan
- Hot part replacement: Yes

### Capacity management

- Thin Provisioning: Yes
- RAID migration: Yes
- LUN online expansion w/o interruption: Yes
- Reporting function: Yes
- Hot part expansion: Yes
**Management**

**Interfaces**
- Ethernet (1000 Base-T / 100 Base-TX / 10 Base-T)

**Supported protocols**
- SNMP (version 1, 2C, 3), SMI-S 1.6

**Administration**
- Web-based graphical user interface, CLI (Command Line Interface), ETERNUS SF

**Remote Support**
- Event notification (E-mail / SNMP / Syslog), Remote maintenance

**Supported configurations**
- All major host operating systems, servers and business applications
  
  Detailed support matrix:
  http://www.fujitsu.com/global/services/computing/storage/eternus/products/diskstorage/dx200/#Tab0-4


**Installation specification**

**19” rackmount**
- Yes

**Service Area**
- Front: 850 mm (33.5 inch) or more
- Rear: 850 mm (33.5 inch) or more

**Power voltage**
- AC 100 - 120 V / AC 200 - 240 V

**Power frequency**
- 50 / 60 Hz

**Power supply efficiency**
- 92 % (80 PLUS gold)

**Power phase**
- Single

<table>
<thead>
<tr>
<th>2.5-inch Controller Enclosure</th>
<th>2.5-inch Drive Enclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td></td>
</tr>
<tr>
<td>482 x 805 x 133 mm</td>
<td>482 x 540 x 88 mm</td>
</tr>
<tr>
<td>19 x 31.7 x 5.2 inch</td>
<td>19 x 21.3 x 3.5 inch</td>
</tr>
<tr>
<td>3 U</td>
<td>2 U</td>
</tr>
</tbody>
</table>

| Weight                        |                           |
| 54 kg (119 lb)                | 35 kg (77 lb)             |

<table>
<thead>
<tr>
<th>Maximum Power Consumption</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(AC 100 - 120 V)</td>
<td>(AC 200 - 240 V)</td>
</tr>
<tr>
<td>760W (770VA)</td>
<td>870W (880VA)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maximum Power Consumption</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(AC 200 - 240 V)</td>
<td></td>
</tr>
<tr>
<td>430W (440VA)</td>
<td>430W (440VA)</td>
</tr>
</tbody>
</table>

**Environment**

**Temperature (operating)**
- 10 - 40 °C

**Temperature (not operating)**
- 0 - 50 °C

**Humidity (operating)**
- 20 - 80 % (relative humidity, non-condensing)

**Humidity (not operating)**
- 8 - 80 % (relative humidity, non-condensing)

**Altitude**
- 3,000 m (10,000 ft.)

**Sound pressure (LpAm)**
- 54dB(A)

**Sound power (LWAd; 1B = 10dB)**
- 7.2B

**Noise notes**
- Measured with single enclosure according to ISO 7779 and declared according to ISO 9296

**Operating environment**
- FTS 04230 – Guideline for Data Center (installation specification)

**Operating environment link**

<table>
<thead>
<tr>
<th>Type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Heat Generation</td>
<td></td>
</tr>
<tr>
<td>(AC 100 - 120 V)</td>
<td>(AC 200 - 240 V)</td>
</tr>
<tr>
<td>2800 kJ/h</td>
<td>3200 kJ/h</td>
</tr>
<tr>
<td>1600 kJ/h</td>
<td>1600 kJ/h</td>
</tr>
</tbody>
</table>

**Compliance**

**Product safety**
- UL 60950-1, CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1, TP TC 004/2011

**Electromagnetic Compatibility**
- FCC Part-15 Subpart B Class A, ICES-003 Class A, EN55022 Class A, EN 61000-3-2, EN 61000-3-3, EN 55024, VCCI Class A, JIS C 61000-3-2, AS/NZS CISPR22 Class A, TP TC 020/2011, CNS13438 (G6357) Class A, KN22 Class A, KN24 Class A

**Electromagnetic Immunity**
- EN 55024

**CE certification**
- 2014/30/EU, 2014/35/EU, 2011/65/EC

**Approvals**
- CB, CE, C-Tick, FCC, EAC, GS, VCCI

**Environmental compliance**
- RoHS compliant, WEEE compliant

**Compliance notes**
- There is general compliance with the safety requirements of all European countries and North America. National approvals required in order to satisfy statutory regulations or for other reasons can be applied for on request.

**Compliance link**
## Warranty

<table>
<thead>
<tr>
<th>Warranty</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Warranty period</strong></td>
<td>3 years</td>
</tr>
<tr>
<td><strong>Warranty type</strong></td>
<td>Onsite warranty</td>
</tr>
<tr>
<td><strong>Warranty Terms &amp; Conditions</strong></td>
<td><a href="http://www.fujitsu.com/support">www.fujitsu.com/support</a></td>
</tr>
</tbody>
</table>

## Product Support Services - the perfect extension

<table>
<thead>
<tr>
<th>Support Pack Options</th>
<th>Globally available in major business areas:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9x5, Next Business Day Onsite Response Time</td>
</tr>
<tr>
<td></td>
<td>9x5, 4h Onsite Response Time</td>
</tr>
<tr>
<td></td>
<td>24x7, 4h Onsite Response Time</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommended Service</th>
<th>24x7, Onsite Response Time: 4h</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service Lifecycle</strong></td>
<td>5 years after end of product life</td>
</tr>
<tr>
<td><strong>Service Weblink</strong></td>
<td><a href="http://www.fujitsu.com/support">http://www.fujitsu.com/support</a></td>
</tr>
</tbody>
</table>
Fujitsu OPTIMIZATION Services
In addition to Fujitsu ETERNUS AF650, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

Fujitsu Portfolio
Built on industry standards, Fujitsu offers a full portfolio of IT hardware and software products, services, solutions and cloud offering, ranging from clients to datacenter solutions and includes the broad stack of Business Solutions, as well as the full stack of Cloud offerings. This allows customers to select from alternative sourcing and delivery models to increase their business agility and to improve their IT operation’s reliability.

Computing Products
www.fujitsu.com/global/products/computing/

Software
www.fujitsu.com/software/

Fujitsu green policy innovation
Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment. Using our global know-how, we aim to contribute to the creation of a sustainable environment for future generations through IT. Please find further information at http://www.fujitsu.com/global/about/environment

More information
Learn more about Fujitsu ETERNUS AF650, please contact your Fujitsu sales representative or Fujitsu Business partner, or visit our website.
www.fujitsu.com/eternus

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FUJITSU Limited
Website: www.fujitsu.com/eternus
2016-10-19 WW-EN

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